



# EPA

## ***DRAFT* fact sheet** **underground injection control**

### **Class V - Injection Well Information** **Aquifer Recharge and Aquifer Storage and Recovery Wells**

The Underground Injection Control (UIC) Program, created under the authority of the Safe Drinking Water Act (SDWA), is a preventative program aimed at protecting existing and future underground sources of drinking water (USDWs). Shallow wells or disposal systems that discharge fluids into the subsurface are known as Class V wells and can be authorized to inject by rule or permit. Class V wells that have the potential for ground water contamination or degradation are usually permitted. Those that do not have a potential to contribute to contamination or degradation of ground water are usually rule authorized, once inventory information has been submitted according to the requirements of 40 CFR 144.26. In addition to the inventory requirements, EPA may, under the authority of 144.27, require the owner or operator of any well authorized by rule to submit additional information to determine if injection activity could endanger a USDW.

Aquifer recharge and Aquifer Storage and Recovery (ASR) wells are Class V wells used to inject water into an aquifer for subsequent use. An aquifer recharge well is used only for injection to replenish the water in an aquifer; an ASR well is used for injection to store water in the aquifer, then to recover the stored water from the same well for a beneficial use.

The following information is needed to evaluate the impact a Class V injection well used for aquifer recharge or ASR will have on the local hydrogeologic system, potential for USDW contamination, and whether a **permit** for this operation, rather than a **rule authorization**, should be required.

#### **Please provide the following information to EPA:**

- ☐ Property owner of facility including a physical and mailing address; phone and fax numbers.
- ☐ Operator of facility including a physical and mailing address; phone and fax numbers.
- ☐ Responsible party for the operation, maintenance, and closure of the injection system including a physical and mailing address; phone and fax numbers.
- ☐ Contact persons representing any other state or local agencies that have an interest in the site; include a physical and mailing address and phone number.
- ☐ Describe the project plan, including
  - ☐ source of injectate,
  - ☐ injection procedures, injection rate, volume and pressure
  - ☐ intended receiving formation,
  - ☐ hydrogeology of the area.
  - ☐ overlying and underlying aquifers that could be impacted,
  - ☐ the effect of injection activities on these aquifers,
  - ☐ public and private wells within 1 mile of the project area,
  - ☐ whether wells are completed in the intended receiving formation, and
  - ☐ the effect of injection activities on these wells.

- Determine the aerial extent of the aquifer(s) (i.e. fill-up volume) that would be impacted by the proposed injection based on the proposed injection volumes and rates. Identify all outcrops of the formation to receive injectate and any potential to create artificial springs. Identify mechanisms which will increase the volume of ground water infiltration into nearby surface water bodies. Identify all erosional intersections between the proposed formation to receive injectate and potentially affected surface water drainage systems.
- Map of the site location (1:24,000 topographic map or similar)
- Hydrogeologic description, location, depth, and current use (if any) of the receiving formations.
- Aquifer characteristics: transmissivity, storage coefficient, hydraulic conductivity, saturated thickness, information from drawdown tests and specific capacity
- If injection is into an alluvial aquifer, provide locations of surface water bodies, i.e. rivers, streams, and lakes, within one mile of injection site (may substitute topographic map).
- Analysis of the water to be injected including constituents regulated under the Safe Drinking Water Act (SDWA), major anions and cations, ambient temperature and pH, presented as tabular data
- If available, analysis of the fluids in the receiving formation(s) including constituents regulated under the Safe Drinking Water Act (SDWA), major anions and cations, ambient temperature and pH, presented as tabular data.
- To evaluate the impact of injected water on the receiving formation, plot the major anions and cations from the above analyses of the injectate, the receiving formation fluids, and mixed fluids on a tri-linear diagram or Piper diagram. Provide a brief assessment regarding the compatibility of the injected water and the receiving formation fluids.
- To identify any potential mineralogical constituents in the receiving formation that might be mobilized as a result of injection activities, provide chemical analysis of core samples from the receiving formation and results from column leachate tests simulating the chemical conditions of injection activities.
- Completion diagram showing the construction plans for proposed injection well(s).
- A brief description of contingency plans for treating the well(s) to prevent or remediate bacteriological or mineral buildup in the well, which could affect the injection operation
- Briefly describe planned treatment of injectate proposed prior to injection, such as filtering to remove particulates which might plug the receiving formation
- Briefly describe proposed monitoring program, including tracking of injectate volume, proposed for the operation
- Presence of any ground water contamination plumes near the project area that could affect or be affected by injection activity

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